Amendments to the Claims:

1. (currently amended) An apparatus for transporting a plurality of Time Division Multiplexing (TDM) ~~bit~~ streams over an asynchronous Ethernet network, comprising:

an ingress buffer ~~adapted~~ for storing TDM data before encapsulation into Ethernet frames;

an egress buffer ~~adapted~~ for storing ~~Ethernet frames after segmentation into TDM streams~~ TDM data after received Ethernet frames are segmented;

encapsulation means ~~operative to retrieve~~ for retrieving TDM data from said ingress buffer, ~~assemble~~ assembling Ethernet frames therefrom, inserting therein a first timestamp related to said TDM data and ~~forward~~ forwarding said assembled Ethernet frames to ~~said~~ an Ethernet interface;

segmentation means ~~operative to receive~~ for receiving Ethernet frames from [[an]] said Ethernet interface, ~~extract~~ extracting TDM data and a second timestamp therefrom and ~~store~~ storing said TDM data in said egress buffer; and

a processor ~~adapted to~~ comprising means for:

~~receive~~ receiving TDM data from a plurality of TDM ports;

~~store~~ storing said TDM data in said ingress buffer in accordance with output Ethernet frames; and

retrieving TDM data from said egress buffer and generating a plurality of synchronous TDM data streams therefrom.

2. (currently amended) The apparatus according to claim 1, wherein said plurality of TDM ~~stream~~ streams comprises ~~a stream~~ streams selected from ~~the~~ a group comprising E1, T1, E3, T3, OC-3, STM-1, OC-12[[,]] and STM-4 streams.

3. (currently amended) The apparatus according to claim 1, wherein said encapsulation means ~~is operative to encapsulate~~ encapsulates data from a plurality of TDM ports into a single Ethernet frame.

4. (currently amended) The apparatus according to claim 1, wherein said encapsulation means ~~is operative to encapsulate~~ encapsulates data from a plurality of TDM frames corresponding to a single TDM port into a single Ethernet frame.

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5. (currently amended) The apparatus according to claim 1, wherein said segmentation means ~~is operative to segment~~ segments an Ethernet frame into a plurality of TDM streams, each TDM stream corresponding to a different TDM port.

6. (currently amended) The apparatus according to claim 1, wherein said segmentation means ~~is operative to segment~~ segments an Ethernet frame into a plurality of TDM frames corresponding to a single TDM port.

7. (currently amended) The apparatus according to claim 1, wherein said processor ~~is adapted to store~~ for storing TDM data received from a plurality of TDM ports in accordance with specific port based parameters.

8. (currently amended) The apparatus according to claim 1, wherein said processor ~~is adapted to store~~ for storing TDM data received from a plurality of TDM ports in accordance with specific time based parameters.

9. (currently amended) The apparatus according to claim 1, wherein said encapsulation means ~~is operative to receive~~ receives TDM data on a plurality of constant synchronous serial bit streams.

10. (currently amended) The apparatus according to claim 1, wherein said encapsulation means ~~is operative to perform encryption on~~ encrypts said TDM data before packaging said TDM data into Ethernet frames.

11. (currently amended) The apparatus according to claim 1, wherein said encapsulation means ~~is operative to perform compression on~~ compresses said TDM data before packaging said TDM data into Ethernet frames.

12. (currently amended) The apparatus according to claim 1, wherein said encapsulation means ~~is operative to calculate~~ calculates a Cyclic Redundancy Check (CRC) code ~~before~~ for use in packaging said TDM data into Ethernet frames.

13. (currently amended) The apparatus according to claim 1, wherein said encapsulation means comprises:

means for packaging TDM stream data into Real Time Protocol (RTP) packets, then into User Datagram Protocol (UDP) packets, then into Internet Protocol (IP) packets and finally into Ethernet frames; and

means for generating appropriate header information for said RTP ~~packet~~ packets, UDP ~~packet~~ packets, IP ~~packet~~ packets and Ethernet ~~frame~~ frames or a subset thereof.

14. (currently amended) The apparatus according to claim 1, wherein said encapsulation means ~~is operative to forward~~ forwards Ethernet frames toward an Ethernet Media Access Control (MAC) device.

15. (currently amended) The apparatus according to claim 1, wherein said segmentation means comprises:

means for extracting TDM stream data from the contents of a Real Time Protocol (RTP) packet, User Datagram Protocol (UDP) packet and Internet Protocol (IP) packet extracted from ~~said~~ a received Ethernet frame; and

means for storing said TDM data in said egress buffer in accordance with the contents of RTP header information.

16. (currently amended) The apparatus according to claim 1, wherein said processor ~~is adapted to perform~~ for performing rate adaptation between a plurality of TDM ports and an egress buffer interface.

17. (currently amended) The apparatus according to claim 1, wherein said processor ~~is adapted to forward~~ for forwarding TDM frames to appropriate TDM ports as a constant synchronous serial or parallel bit stream.

18. (currently amended) An apparatus for transporting TDM ~~bit~~ streams over an Ethernet network, comprising:

a plurality of TDM port interfaces coupled to a plurality of TDM ports, each TDM port ~~adapted to receive~~ for receiving a constant synchronous serial or parallel TDM ~~bit~~ stream;

at least one Ethernet interface ~~adapted to be~~ coupled to ~~[[an]]~~ said Ethernet network;

encapsulation means ~~operative to retrieve~~ for retrieving TDM data from an ingress buffer, ~~assemble~~ assembling Ethernet frames therefrom, inserting therein a first timestamp related to said TDM data and ~~forward~~ forwarding said assembled Ethernet frames to said Ethernet interface;

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segmentation means ~~operative to receive~~ for receiving Ethernet frames from said Ethernet interface, ~~extract~~ extracting TDM data and a second timestamp therefrom and ~~store~~ storing said TDM data in an egress buffer; and

a processor comprising means for:

~~receive~~ receiving TDM data from a plurality of TDM ports;

~~store~~ storing said TDM data in said ingress buffer in accordance with output Ethernet frames; and

retrieving TDM data from said egress buffer and generating a plurality of TDM data streams therefrom.

19. (original) The apparatus according to claim 18, wherein said Ethernet interface comprises a 10Base-T Ethernet interface.

20. (original) The apparatus according to claim 18, wherein said Ethernet interface comprises a 100Base-T Fast Ethernet interface.

21. (original) The apparatus according to claim 18, wherein said Ethernet interface comprises a 1000Base-T Gigabit Ethernet interface.

22. (original) The apparatus according to claim 18, wherein said Ethernet interface comprises a 10 Gigabit Ethernet interface.

23. (currently amended) The apparatus according to claim 18, wherein said plurality of TDM port interfaces comprises at least one port interface selected from ~~the~~ a group comprising E1, T1, E3, T3, OC-3, STM-1, OC-12 and STM-4 port interfaces.

24. (currently amended) The apparatus according to claim 18, wherein said encapsulation means ~~is operative to encapsulate~~ encapsulates data from a plurality of TDM ports into a single Ethernet frame.

25. (currently amended) The apparatus according to claim 18, wherein said encapsulation means ~~is operative to encapsulate~~ encapsulates data from a plurality of TDM frames corresponding to a single TDM port into a single Ethernet frame.

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26. (currently amended) The apparatus according to claim 18, wherein said segmentation means ~~is operative to segment~~ segments an Ethernet frame into a plurality of TDM streams, each TDM stream corresponding to a different TDM port.

27. (currently amended) The apparatus according to claim 18, wherein said segmentation means ~~is operative to segment~~ segments an Ethernet frame into a plurality of TDM frames corresponding to a single TDM port.

28. (currently amended) The apparatus according to claim 18, wherein said processor ~~is adapted to store~~ for storing TDM data received from a plurality of TDM ports in accordance with specific port based parameters.

29. (currently amended) The apparatus according to claim 18, wherein said processor ~~is adapted to store~~ for storing TDM data received from a plurality of TDM ports in accordance with specific time based parameters.

30. (currently amended) The apparatus according to claim 18, wherein said encapsulation means comprises:

means for packaging TDM stream data into Real Time Protocol (RTP) packets, then into User Datagram Protocol (UDP) packets, then into Internet Protocol (IP) packets and finally into Ethernet frames; and

means for generating appropriate header information for said RTP ~~packet~~ packets, UDP ~~packet~~ packets, IP ~~packet~~ packets and Ethernet ~~frame~~ frames or any subset thereof.

31. (currently amended) The apparatus according to claim 18, wherein said segmentation means comprises:

means for extracting TDM stream data from the contents of a Real Time Protocol (RTP) packet, User Datagram Protocol (UDP) packet and Internet Protocol (IP) packet extracted from ~~said~~ a received Ethernet frame; and

means for storing said TDM data in said egress buffer in accordance with the contents of RTP header information or any subset thereof.

32. (currently amended) A method of transporting a plurality of Time Division Multiplexing (TDM) ~~bit~~ streams over an Ethernet network, said method comprising the steps of:

receiving TDM stream data from a plurality of TDM ports;

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assembling Ethernet frames from said received TDM stream data and inserting therein a first timestamp related to said TDM stream data;

forwarding said assembled Ethernet frames to said Ethernet network via an Ethernet interface connected thereto;

receiving Ethernet frames from said Ethernet network;

extracting TDM data and a second timestamp from said received Ethernet frames and generating TDM streams therefrom; and

forwarding said generated TDM streams to an appropriate TDM port in a synchronous manner.

33. (original) The method according to claim 32, wherein said step of receiving TDM stream data comprises the step of storing said TDM data in an ingress buffer in accordance with an output Ethernet frame to be generated.

34. (original) The method according to claim 32, wherein said step of extracting comprises the step of storing segmented TDM data in an egress buffer.

35. (original) The method according to claim 32, wherein said Ethernet interface comprises a 10Base-T Ethernet interface.

36. (original) The method according to claim 32, wherein said Ethernet interface comprises a 100Base-T Fast Ethernet interface.

37. (original) The method according to claim 32, wherein said Ethernet interface comprises a 1000Base-T Gigabit Ethernet interface.

38. (original) The method according to claim 32, wherein said Ethernet interface comprises a 10 Gigabit Ethernet interface.

39. (currently amended) The method according to claim 32, wherein said plurality of TDM port interfaces comprises at least one port interface selected from ~~the~~ a group comprising E1, T1, E3, T3, OC-3, STM-1, OC-12 and STM-4 port interfaces.

40. (original) The method according to claim 32, wherein said step of assembling comprises the step of encapsulating data from a plurality of TDM ports into a single Ethernet frame.

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41. (original) The method according to claim 32, wherein said step of assembling comprises the step of encapsulating data from a plurality of TDM frames corresponding to a single TDM port into a single Ethernet frame.

42. (original) The method according to claim 32, wherein said step of extracting comprises the step of segmenting an Ethernet frame into a plurality of TDM streams, each TDM stream corresponding to a different TDM port.

43. (original) The method according to claim 32, wherein said step of extracting comprises the step of segmenting an Ethernet frame into a plurality of TDM frames corresponding to a single TDM port.

44. (original) The method according to claim 32, further comprising the step of storing TDM data received from a plurality of TDM ports in accordance with specific port based parameters.

45. (original) The method according to claim 32, further comprising the step of storing TDM data received from a plurality of TDM ports in accordance with specific time based parameters.

46. (currently amended) The method according to claim 32, wherein said step of assembling comprises the steps of:

packaging TDM stream data into Real Time Protocol (RTP) packets, then into User Datagram Protocol (UDP) packets, then into Internet Protocol (IP) packets and finally into Ethernet frames; and

generating appropriate header information for said RTP ~~packet~~ packets, UDP ~~packet~~ packets, IP ~~packet~~ packets and Ethernet ~~frame~~ frames or a subset thereof.

47. (currently amended) The method according to claim 32, wherein said step of extracting comprises the steps of:

extracting TDM stream data from the contents of a Real Time Protocol (RTP) packet, User Datagram Protocol (UDP) packet and Internet Protocol (IP) packet extracted from ~~said~~ a received Ethernet frame; and

storing said TDM data in said egress buffer in accordance with the contents of RTP header information.

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